

Application No. 09/863,674
Reply to Office Action mailed April 7, 2004

REMARKS

This Amendment serves as the submission accompanying Applicants' Request for Continued Examination (RCE) filed pursuant to 37 C.F.R. §1.114. By final Office Action mailed April 7, 2004, pending claims 18-26 stood rejected, reconsideration of which is respectfully requested in view of the above amendments and the following remarks. Claims 18 and 19 have been amended. Claims 18-26 are now pending.

Teleconference with Examiner

As an initial matter, Applicants would like to thank the Examiner for the June 29, 2004 teleconference with Applicants' attorneys. As discussed, Applicants are submitting this Amendment, together with a Request for Continued Examination, to enter further claim amendments and arguments to address the Examiner's rejections of the pending claims.

Claim Amendments

In view of the June 29, 2004 teleconference with the Examiner, Applicants have amended claims 18 and 19 to further clarify certain aspects of the present invention. Support for these amendments may be found generally throughout the specification and, in particular, in Figures 4, 9 and 10, and the corresponding description of such Figures at page 6, line 23 through page 7, line 20; page 8, lines 6-12; and page 8, line 23 through page 9, line 3. No new matter has been added by way of these amendments.

Rejections Under 35 U.S.C. §102(e)

Claims 18-26 remain rejected under 35 U.S.C. §102(e) as anticipated by Weigl et al. (U.S. Patent No. 6,171,865). In view of the foregoing amendments to independent claim 18, Applicants again respectfully traverse this ground of rejection and submit that Weigl does not disclose every element of the pending claims. In particular, Weigl does not disclose a method comprising (1) forming a single combined fluid stream which has a uniform composition across the width of the microfluidic channel; or (2) varying the flow rates of a first fluid, a second fluid or both the first and second fluids such that the ratio of the flow rates of the first and second

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fluids is not constant and the concentration of the diffusible constituent in the single combined fluid stream varies along the length of the microfluidic channel.

As set forth in Applicants' prior Amendment dated December 22, 2003, Weigl is directed to a method for detecting the presence or determining the concentration of analyte particles in a sample stream. As noted by the Examiner, such method comprises flowing a first fluid comprising a diffusible constituent (such as a sample stream comprising analyte particles) through a first inlet into a microfluidic channel and flowing a second fluid (such as an indicator stream comprising an indicator substance) through a second inlet into the same microfluidic channel, thereby providing a diffusion interface between the first and second fluids. As noted by Weigl, as the first and second fluids flow through the microfluidic channel, the diffusible constituent (*i.e.*, the analyte particles) will diffuse across the diffusion interface into the second fluid, thereby providing a detection area.

In the present Office Action, the Examiner points to column 22, lines 48-54. of Weigl as disclosing the possible eventual formation of a uniform particle diffusion area (120) in which the diffusible constituent will be uniformly distributed across the width of the microfluidic channel. As set forth above, Applicants have amended claim 18 to clarify that the present invention is directed to a method that comprises forming "a *single combined fluid stream* which has a uniform composition across the width of the microfluidic channel" (emphasis added). Although, as noted in the passage cited by the Examiner, Weigl discloses that the diffusible constituent may eventually be uniformly distributed, Weigl does not teach the formation of such a *single combined fluid stream*. To the contrary, the detection method of Weigl relies upon the maintenance of parallel laminar flow between adjacent (and separate) fluid streams to facilitate the formation of a diffusion interface between the first and second fluid streams, thereby providing a detection area, and, in this way, teaches against the formation of a single combined fluid stream. Accordingly, Applicants submit that Weigl does not disclose this element of pending claim 18.

With respect to the second aspect of claim 18 noted above, the Examiner points to column 18, lines 43-59, of Weigl as disclosing that the flow rates of the first and second fluid streams may be varied in order to provide for the indicator substance to have a longer contact

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time with the diffusible constituent. Applicants respectfully disagree with the Examiner's reading of Weigl. Although, in the passage cited by the Examiner, Weigl discloses that the first and second fluid streams may be flowing at different rates, Weigl does not teach that such flow rates may be *varied* (i.e., not be constant). Accordingly, as set forth above, and to further distinguish the present invention, Applicants have amended claim 18 to clarify that the claimed method comprises "*varying the flow rates of a first fluid, a second fluid or both the first and second fluids such that the ratio of the flow rates of the first and second fluids is not constant and the concentration of the diffusible constituent in the single combined fluid stream varies along the length of the microfluidic channel*" (emphasis added). In this way, Applicants further submit that Weigl does not anticipate this element of pending claim 18.

In view of the foregoing, Applicants submit that Weigl does not disclose every element of pending independent claim 18. Furthermore, Applicants submit that there is no teaching or suggestion in Weigl to modify the method disclosed therein to achieve the claimed method of the present invention. As for dependent claims 19-26, since these claims are dependent from, and thus contain all the limitations of claim 18, they are patentable for the same reasons. Accordingly, Applicants request that this ground of rejection be withdrawn.

Information Disclosure Statement

As a final matter, Applicants submit herewith an Information Disclosure Statement citing three references identified in the International Search Report for International Application No. PCT/US01/16590, filed May 23, 2001, which claims to U.S. Provisional Patent Application No. 60/206,878, from which the present application also claims priority.

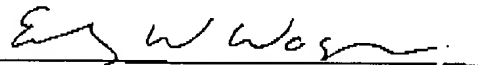
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In view of the above amendment and remarks, allowance of claims 18-26 is respectfully requested. A good faith effort has been made to place this application in condition for allowance. However, should any further issue require attention prior to allowance, the Examiner is requested to contact the undersigned at (206) 622-4900 to resolve the same. Furthermore, the Commissioner is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,

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Enclosures:

Petition for Extension of Time
Information Disclosure Statement
PTO Form 1449
Cited References (3)

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